

(no spikes or double contours). The modified activity score (International Society of Nephrology/Renal Pathology Society/National Institutes of Health [ISN/RPS/NIH]) was 0/24, and the chronicity score was 0/12.⁵ Spontaneous remission did not occur in follow-up measurements, and as nephrotic proteinuria persisted for 7 weeks, we initiated immunosuppressive therapy with mycophenolate mofetil (1 g bid) and prednisolone (60 mg qd). As can be seen in Figure 2a, proteinuria declined initially, and the patient reported substantial improvement of her general well-being and the absence of foamy urine. Proteinuria increased again the following week, but with a tendency toward improvement of the absolute amount in the next measurements. ANA titers, which increased after vaccination, also declined after the start of therapy. Anti-DNA-antibody levels did not increase after the vaccination, and the slightly-below-normal C3c-levels increased (Figure 2b–d).

The patient had already developed an antibody response against the spike protein of SARS-CoV-2 (Figure 2); thus, we decided to postpone the second vaccination in light of declining incidence numbers. When to proceed with the second vaccination remains to be determined, as full remission of the proteinuria has not been achieved yet.

To our knowledge, our case report is the first to describe a biopsy-proven relapse of lupus nephritis class V and II. New-onset minimal change glomerulopathies^{3,6} and other forms of glomerulonephritis (e.g., *de novo* IgAN,² relapse IgA nephropathy,¹ and even anti-glomerular basement membrane glomerulonephritis)⁷ have been described as sequelae of mRNA COVID-19 vaccination. This case adds yet another piece of evidence that relapse in immune-mediated disease might be induced by COVID-19 mRNA vaccine. Although the mechanisms triggering these relapses are still elusive, stringent postvaccination surveillance for renal function, proteinuria, and serologic markers for immune disease is essential in this vulnerable patient population.

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Katharina Tuschen¹, Jan Hinrich Bräsen², Jessica Schmitz², Martin Vishedyk³ and Alexander Weidemann¹

¹Medical Clinic III - Nephrology and Dialysis, St. Vincenz Hospital Paderborn, Paderborn, Germany; ²Nephropathology, Institute of Pathology, Medical School Hannover, Hannover, Germany; and ³MVZ Nephrology of PHV gGmbH, Paderborn, Germany

Correspondence: Alexander Weidemann, Medizinische Klinik III—Nephrologie und Dialyse, St. Vincenz-Krankenhaus Paderborn Am Busdorf 2, 33098 Paderborn, Germany. E-mail: a.weidemann@vincenz.de

Kidney International (2021) **100**, 941–944; <https://doi.org/10.1016/j.kint.2021.07.019>

Published by Elsevier, Inc., on behalf of the International Society of Nephrology.

Acute kidney injury with gross hematuria and IgA nephropathy after COVID-19 vaccination



To the editor: The mRNA coronavirus disease 2019 (COVID-19) vaccines induce an IgG response that prevents people from contracting severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Interestingly, there are now at least 6 cases of gross hematuria reported in patients with a history of biopsy-proven IgA nephropathy (IgAN), involving both mRNA vaccines.^{1–3} All of the previous patients were treated with supportive therapy with rapid resolution of hematuria and no acute kidney injury (AKI). It has been reported in preclinical trials that nasal shedding of SARS-CoV-2 still occurred after vaccination with both mRNA vaccines, suggesting a lack of a mucosal IgA response.^{1,4} We also cared for 2 patients who had prior biopsy-proven IgAN, who developed gross hematuria after their second dose of the Pfizer vaccine, without a preceding COVID-19 infection. Table 1 outlines the clinical data. Our first patient presented 5 days after his second dose, with nonspecific myalgias, chills, headache, dysuria, and gross hematuria within 24 hours of initial symptoms. Previous IgAN flares in this patient were precipitated by upper respiratory infections and were limited to gross hematuria with no AKIs and no requirement for steroids in the past. His postvaccine workup was notable for AKI, with a serum creatinine level of 3.53 mg/dl and a urine protein–creatinine ratio of 3.0. He was empirically started on steroids with recovery to baseline renal function at 1 month and recovery to baseline proteinuria within 2 months. Our second patient developed gross hematuria within 24 hours of receiving his second dose. His hematuria resolved after 3 days with supportive therapy only. To our knowledge, we are the first to report an IgAN flare that has led to an AKI that resolved with steroid therapy. We agree that it is not clear how a nonmucosal immune challenge led to an IgAN